Space Weather Forecast

Issued on Saturday, 01 January 2022 at 12:55 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor Geomagnetic storm on 01 January.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate, with one Moderate class flare observed from a region in the northwest quadrant. There are four other regions on the visible disc, with the largest of these, in the southwest quadrant, relatively stable through the last 48 hours, with the other regions weak and stable. No Earth-directed CMEs have been observed on available imagery, though further analysis is required once imagery from the earlier M-flare becomes available.

Solar Wind / Geomagnetic Activity: Solar winds have increased to elevated levels following Earth's connection to the fast wind from a coronal hole. Total magnetic field strength was weak though did become moderate for a while following the arrival of the fast wind. The important north-south component was predominantly weak. Geomagnetic activity has been Quiet to Unsettled with one Active interval.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low or very low solar activity is expected, with a slight chance of further moderate class flares from either of the two significant regions in the western hemisphere, although one of these will be rotating off disc in the next 24 hours.

Solar Wind / Geomagnetic Activity: Solar wind speeds are likely to remain elevated into 02 January, before declining later on 03 January. Geomagnetic activity is expected to be mainly Unsettled to Active with a chance of G1/Minor Storm intervals on day 1 (01 Jan), from day 2 the risk of G1 minor geomagnetic storms eases back to a slight chance with geomagnetic activity becoming mainly Quiet to Unsettled with a chance of Active intervals.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	20	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	10	10	10
Very Active	R3 to R5 X	No	3	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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